SCEP
STATE & COMMUNITY ENERGY PROGRAMS

Training 3 – Best Practices for IGA, Contract, and ESPC Project Execution

September 26, 2024

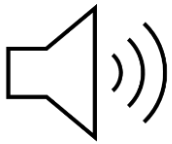
A copy of the slides from today's presentation will be provided to you for reference.

ENERGY SERVICES COALITION
A Public Private Partnership
www.energyservicescoalition.org

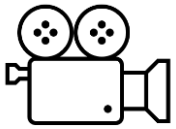
ESPC Campaign

Virtual Housekeeping

Drop your questions in the Q&A box – or raise your hand at the end!



Unmute your microphone to ask questions or join the conversation



A recording of this training (minus the Q&A) will be posted online

Speakers

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Presenter's Bio

- 39 years experience in energy efficiency industry, including engineering, management, marketing, and sales at several engineering firms and energy service companies (ESCOs)
- Founded and ran an ESPC Owner's Rep firm for 18+ years
- U.S. Department of Energy Project Facilitator for Federal ESPCs for 20+ years
- Quality Assurance on $2.5 billion of ESPCs for dozens of state and local governments, K-12, and higher education clients, as well as DOE, DOD, FBI, FDA, GSA, DHS, and others
- BSME from University of South Florida
- Registered Professional Engineer in Nevada
- Certified by the Association of Energy Engineers (AEE) as a Certified Energy Manager (CEM) and Certified Measurement & Verification Professional (CMVP).

About ESC

The Energy Services Coalition (ESC) is a national nonprofit organization composed of a network of experts from a wide range of organizations working together at the state and local level to increase energy efficiency and building upgrades through **E**nergy **S**avings **P**erformance **C**ontracting.

Local chapters; public and private sector individuals coming together to provide outreach and education.

Agenda

Learning Objective: This training will be an introduction to the Investment Grade Audit, Contract development, and implementation of an ESPC.

- Introductions
- Refresher: About ESPC
- Energy Audit
- M&V & Commissioning Plans
- Financial Analysis
- Risk Analysis
- Project Scope and Implementation Plan
- Review and ESPC Approval
- Resources
- Next Steps, Questions, Discussion

This symbol indicates that more information on this topic will be featured in future trainings.

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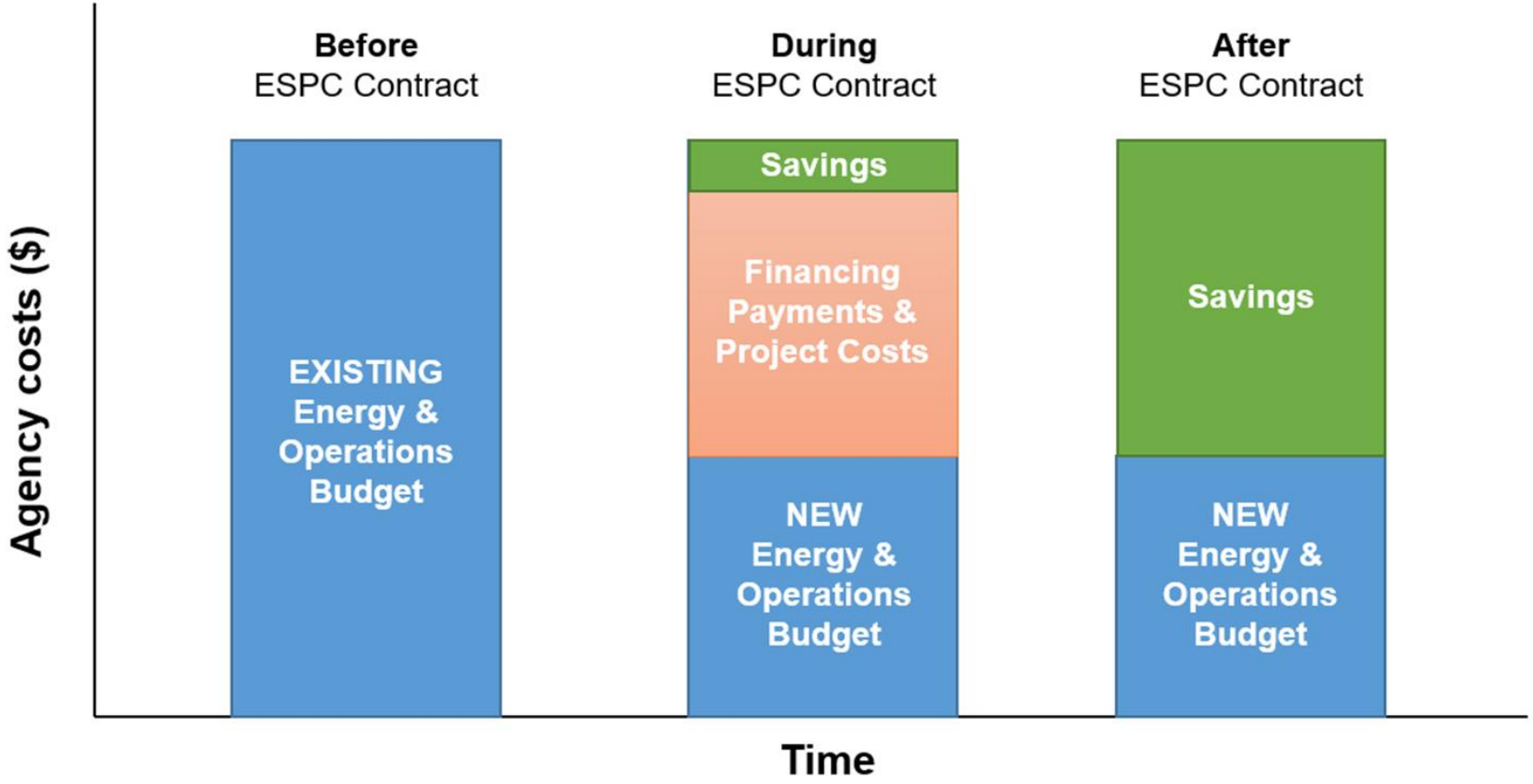
Acronyms Explained

- IGAA – Investment Grade Audit Agreement
- Cx = commissioning
- M&V = measurement & verification
- OMR&R = operations, maintenance, repair and replacement
- DBB = Design, bid, build
- ECM = energy conservation measure
- HVAC = heating, ventilation & air conditioning
- IGA = investment grade audit
- ESCO = energy services company
- ESPC = energy savings performance contract
- DOE = Department of Energy
- PV = photovoltaic
- RFP = Request for Proposal
- BESS = Battery Energy Storage System
- AHJ= Authorities Having Jurisdiction

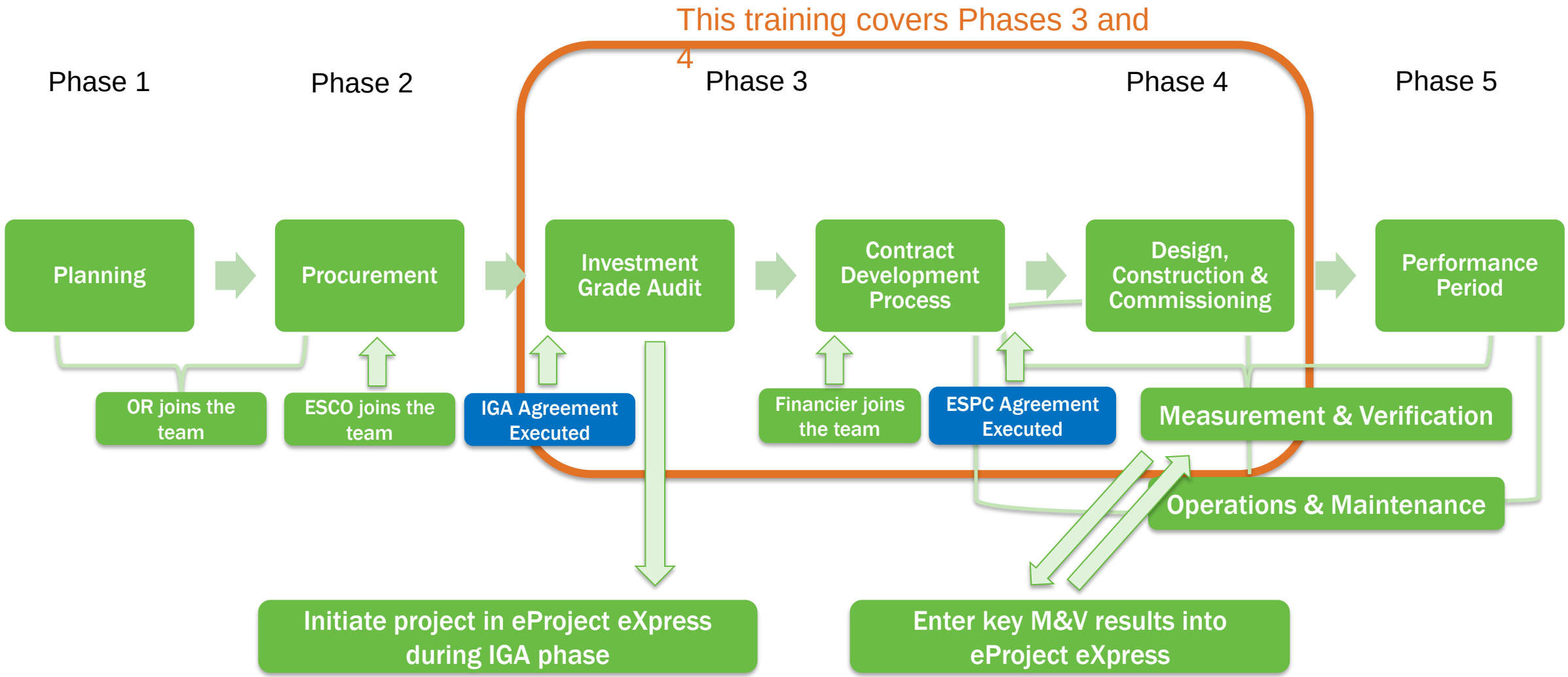
About Energy Savings Performance Contracting (ESPC)

What is ESPC?

The use of **guaranteed** savings from the maintenance and operations budget (utilities) as capital to make needed upgrades and modernizations to your building environmental systems, financed over a specified period of time.



The Five Phases of ESPC



Investment Grade Audit and Contract Components

Executing an IGA Agreement

After ESCO selection, an Investment Grade Audit Agreement (IGAA) should be executed between the Client and the ESCO. This agreement authorizes the ESCO to conduct an Investment Grade Audit (IGA), and provides:

- Audit scope and report requirements
- Guidance on maximum contract term, allowed funding streams, cash flow statements, etc.
- Termination and compensation provisions
- Timeline for ESCO report submission
- Timeline for execution of the Energy Performance Contract Agreement negotiation
- Responsibilities of each party

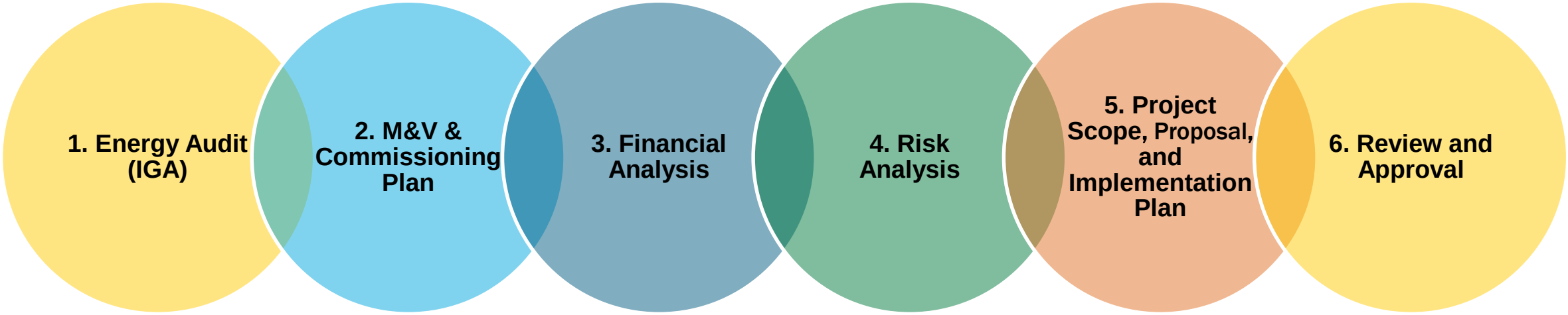
Best Practices for Executing an IGA Agreement

1. Utilize U.S. DOE Model Documents – IGA Agreement
2. ESCO interim IGA submission contents
3. Allow sufficient time for Client to review ESCO submissions.
4. ESCO IGA compensation – IGA fees typically get rolled into project financing. ESCO shall only be paid for IGA if it delivers an IGA that meets Client's objectives, and Client declines to sign Performance Contract agreement.
5. IGA funding: Since IGA funds only need to be expended if project does not get financed, it can be funded on a contingent basis. Usually from utility payment or professional services accounts.

Investment Grade Audit and Contract Components

The Investment Grade Audit (IGA) is the baseline of the ESPC process. It involves a detailed assessment and analysis of a facility's energy use and potential for energy savings.

IGA reports serve as the technical basis for the ESPC project development and justify the economic feasibility of the project to secure financing.



These elements work together to ensure that the project and is well-planned, financially viable, and Contract delivers the intended energy savings.

1. Energy Audit (Investment Grade Audit)

A comprehensive evaluation of the current energy consumption in the facility. The goal is to identify areas where energy efficiency can be improved.

This includes:

- **Establishment of a baseline for energy use**
  - Essential for measuring the effectiveness of the implemented ECMs
  - Collect historical energy data to create a reference point including utility bills, interval and metering data, weather data, maintenance practices, and operational schedules.
- **Identification of energy conservation measures (ECMs)**
  - Examples: Lighting upgrades, HVAC system improvements, installation of renewable energy systems (e.g., solar panels), building envelope improvements, water usage, and insulation.
  - Utilize "bundling" of low with high payback ECMs.
- **Create a pro forma cash flow document**
  - Implementation costs (equipment, services, finance costs, etc.)
  - Annual costs such as loan payments, M&V, OMR&R, etc.
  - Energy and OMR&R savings over the term.

IGA Development: Roles and Responsibilities

ESCO

- Meet requirements of RFP
- Develop financially viable Energy Conservation Measure (ECM) package
- Establish technical approach: ECM baselines; M&V, Cx, and O&M plans
- Provide progress updates and act on feedback

Customer

- Provide guidance and clear expectations
- Attend progress meetings
- Review draft documents/plans promptly
- Witness ESCO baseline measurements
- Engage key stakeholders

Best Practices for Audit Development

ESCO should submit multiple iterations of the IGA, each with increasing detail and responsibility. Allows for iterative decisions with customer.

30% IGA Baseline Report

-Facility descriptions (general, envelope, lighting, HVAC, controls, water)

-Baseline analysis of utilities, O&M practices, etc.

-Equipment inventories; baseline EMS trending and data logger measurements

60% IGA Scoping Report

-Scoping document to outline potential ECMs and those that will not

-High-level cost and savings analysis (*In native electronic format, not PDFs*)

-Draft pro forma/financial models

-Draft M&V plan

90% Draft Final IGA Report

•- Executive summary with facility description, ECM list, pro forma, utility analysis Energy Use Index (EUI)

•- ECM section with detailed descriptions of existing conditions and proposed upgrades

•- Draft Final M&V, commissioning, training, and operations, maintenance, repair & replacement (OMR&R) plans

•- Draft Final ECM costs following open-book pricing model

•- Final ECM savings analyses

•- Appendices for supporting data including EMS trending, data logger results, etc.

100% Final IGA Report

-Ensure end scope reflects municipal priorities and construction planning

-Incorporate all engineering, economic, financial, and overall scope of work changes, as well as completed Comment/ Response/ Resolution document

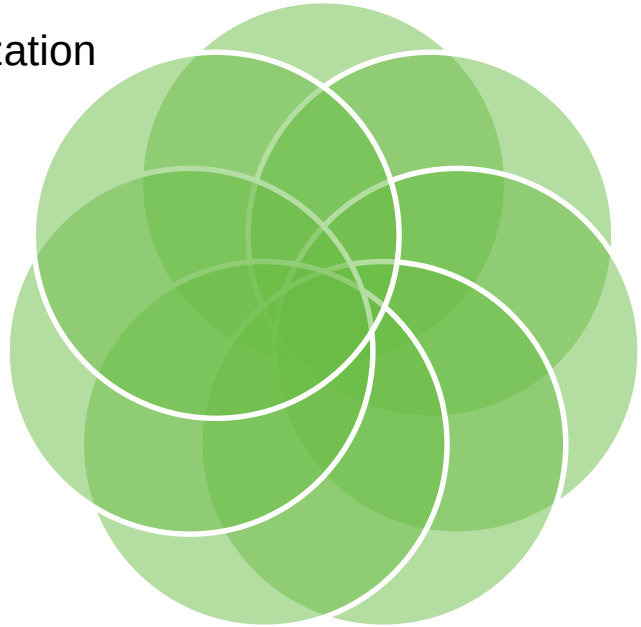
Common Energy Conservation Measures

HVAC Systems

- Heating system - boiler, furnace
- Distribution system - forced air, water
- Cooling system - chiller, roof-top units
- Water Heating System

Electrification & Decarbonization

Building Automation and Controls System



Resilience and Renewable Energy systems (Solar PV, Battery Energy Storage, Microgrids)

Lighting and Lighting Controls System

Water/Sewer Efficiency

- Cooling towers, showers, laundry, irrigation, ball fields, wastewater, water meters where applicable, cooling tower make-up meters, etc.

Other Energy-Using Systems

- Laundry, kitchen, laboratory, solar system, data centers, ice rink, etc.

Sample ECM Summary Table

ECM Summary Table

ECM No.	*ECM Description*	*Implementation Expense*	*Monthly Demand Savings (kW)*	*Annual Electric Savings (kWh)*	*Annual Fossil Fuel Savings (mmBtu)*	*Annual Water Savings (gal)*	*Annual Utility Cost Savings*	*Annual O&M Cost Savings*	*Total Cost Savings*	*Estimated Incentive*	*Simple Payback (yrs)*
1											
2											
3											
4											
	Project Totals										

2. Measurement & Verification (M&V) & Commissioning (Cx) Plan

2. M&V & Commissioning Plan

A detailed plan to verify that the ECMs are delivering the promised energy savings. This involves ongoing monitoring and assessment to ensure that energy savings are achieved and sustained over time.

This includes:

- Selection of M&V methods (e.g., IPMVP options)
- Determination of key performance indicators
- Scheduling of M&V activities
- Commissioning plan and activities

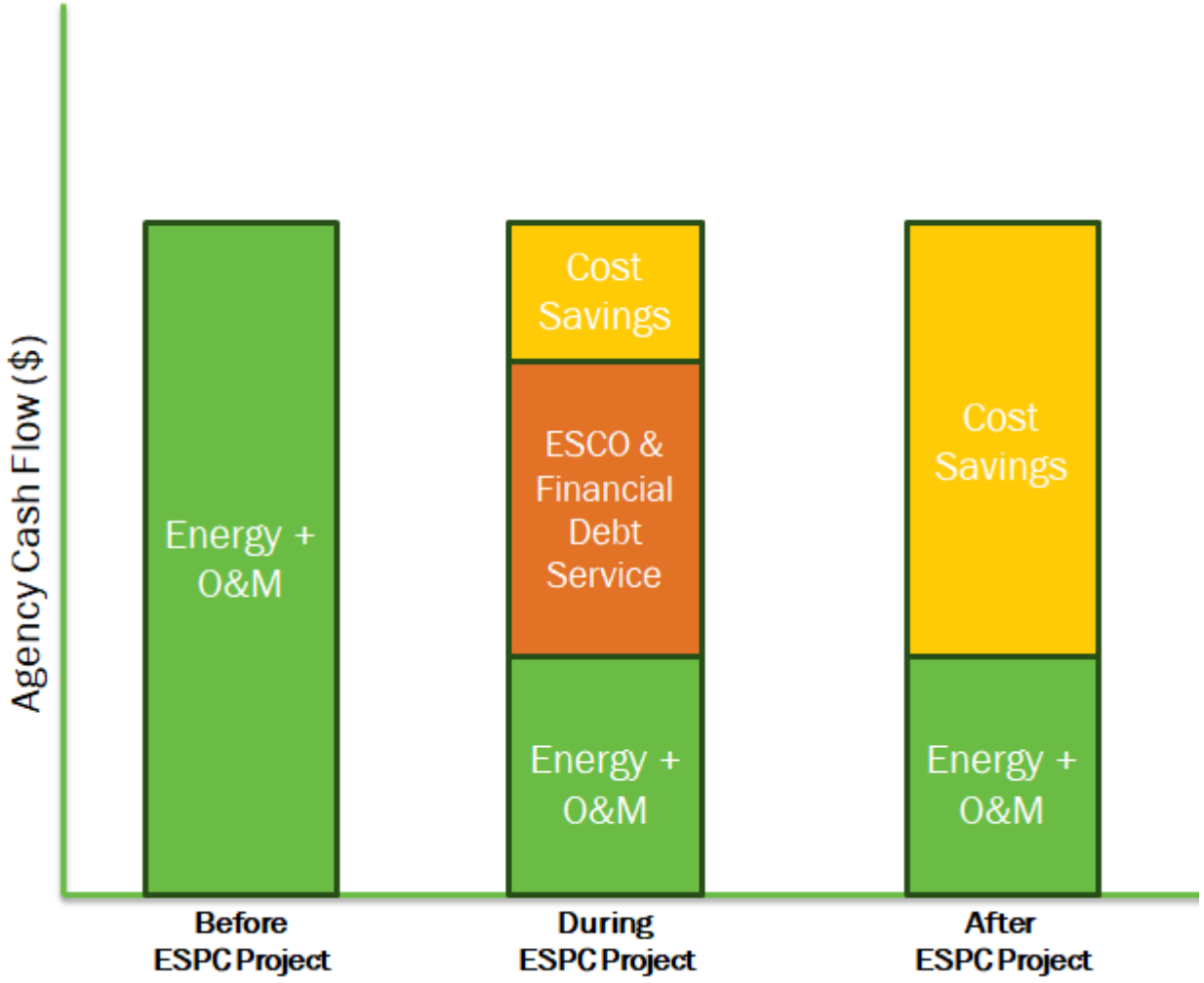
All About Savings

- ESPC Projects are paid through **Guaranteed Savings**
  - Savings must be greater than payments (each year)*

- Generally acceptable savings*
  - Energy/water cost savings and *related* savings
  - Operations & Maintenance
  - Cost avoidance
    - Can be one-time, ongoing, or periodic avoided capital expenditure (but must be documented!)
  - Construction/Implementation-period savings
    - ECMs performing before project acceptance

- How are savings measured?
  - Set a baseline from which to measure
  - This is done during IGA by ESCO

- **How are savings guaranteed?**
  - **Measurement and Verification (M&V)**



*State specific statutes may offer additional details on allowed sources of and rules around cost savings

Benefits of M&V Plan

- A solid M&V plan (that is included in the contract and followed) provides benefits, such as:
  - Limit uncertainty
  - Allocate risks appropriately
  - Potentially identify operations and maintenance issues
  - Safeguarding against future audits
    - Verifying and documenting performance
    - Documenting ESCO and owner due diligence
  - Demonstrating performance to external stakeholders
    - Elected officials can claim credit for proven success ... or point fingers when performance cannot be determined
    - Share progress with community
    - Shows financial responsibility
  - Supporting success of overall organizational ESPC program
    - Quantifying and tracking total actual verified savings for entire ESPC portfolio
  - Understanding the cost of M&V, compared to the risks. Typically, 1%-5% of savings.

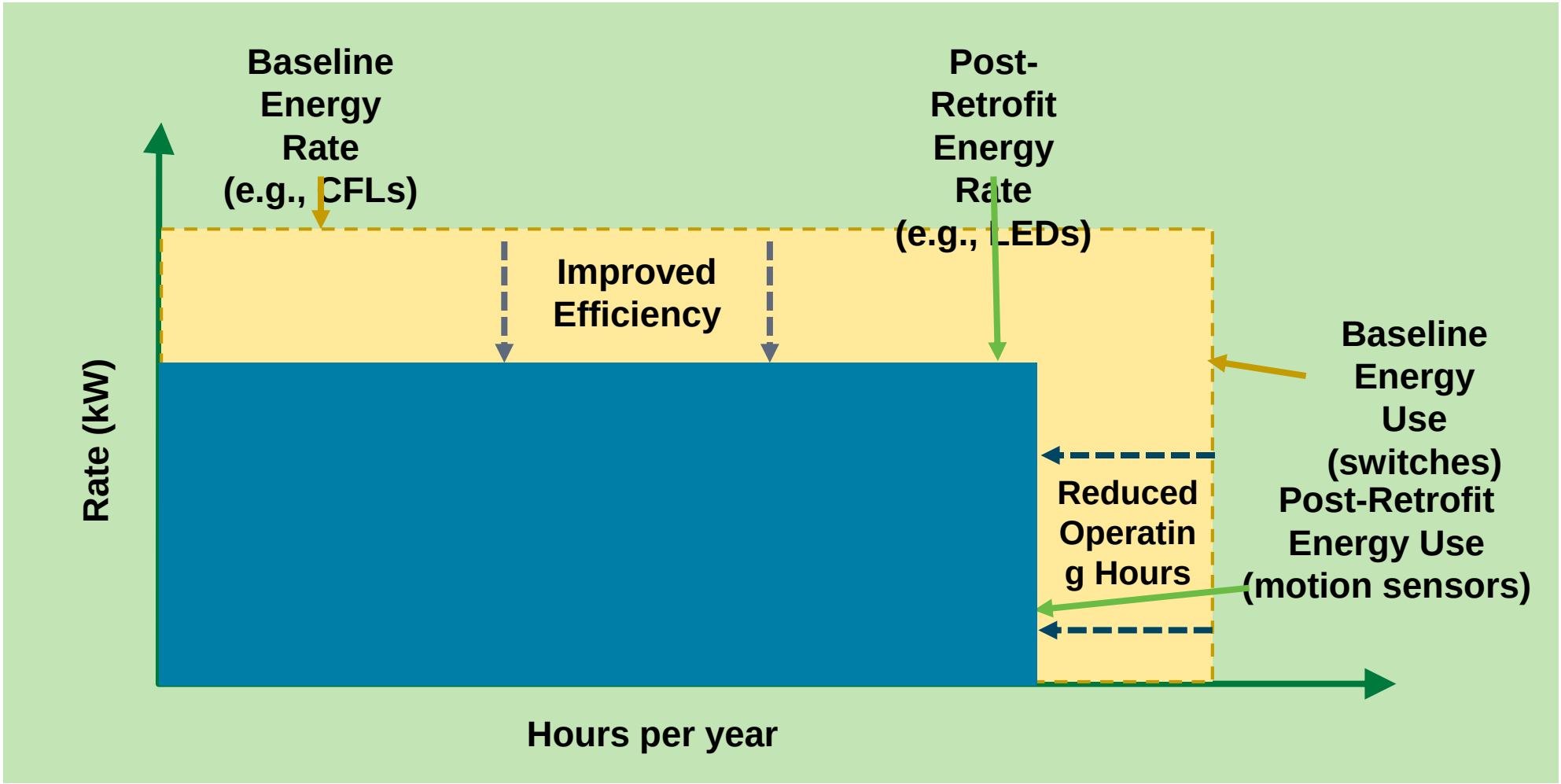
M&V Overview

Customer and ESCO agree to general M&V approach prior to developing the plan (preliminary M&V workshop)

M&V methods chosen affect how baseline is defined, savings are calculated, and performance is verified.

	Energy Service Company (ESCO) Responsibilities	Recommended Customer Activities
Baselines	Estimate for scoping, define in Investment-Grade Audit (IGA) phase	Provide utility data, witnessing, review in IGA
M&V Plan	**In IGA, include a detailed M&V plan for each ECM, including description of pre- /post-install activities and performance period activities to determine ECM performance and methods for determining energy and O&M savings. Submit M&V plan in final IGA report.**	Review, approval
Post-Installation M&V	Complete after Cx and before project acceptance. First formal M&V report (post-install report) to verify ECMs' potential to perform.	Witnessing, review, approval
Annual M&V in Performance Period	Complete per M&V Plan. Document findings in M&V reports and eProject eXpress. Address performance issues or savings shortfalls.	Witnessing, review, approval

M&V Savings



Helpful auto analogy: kW=MPG, kWh=gal of gas used

Basic M&V Concepts

- M&V balances savings assurance against added cost
- Degree of M&V should be proportional to:
  1) ECM's savings
  2) performance risk
- If M&V plan is weak, guarantee may be met only on paper

M&V Measurement Options

International Performance Measurement and Verification Protocol (IPMVP) (Efficiency Valuation Organization)

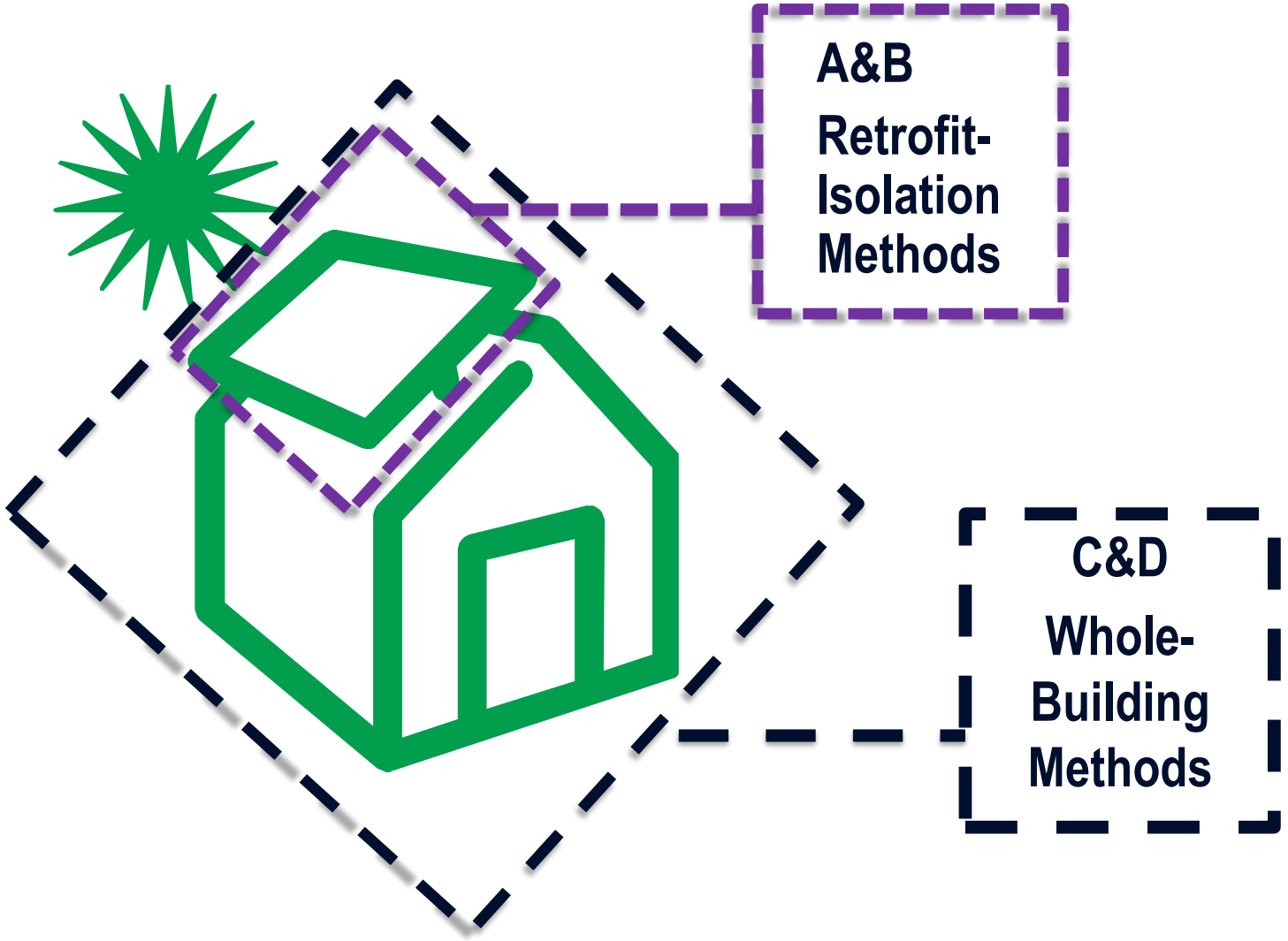
IPMVP provides a framework that is used to:
1) verify a project has the potential to perform and save energy, and
2) quantify site-level energy and cost impacts from a targeted project

Option	Performance (e.g., power)	Usage (e.g., hrs.)	Total Energy	Simulation	Cost	Typical ECMs
A: Retrofit Isolation w/ Key Parameter Measurement	Short- or long-term	Measured or agreed upon			$	Lighting Motors Water
B: Retrofit Isolation w/ All Parameter Measurement	Usually long-term	Usually long-term	Often (via meter), but at component level		$$	Chiller repl. Solar Energy Cooling tower water meter
C: Whole-Facility Measurement			Whole-building level		$$$	Deep retrofits Plant replaced
D: Calibrated Computer Simulation	Component level for calibration		Building level for calibration	Building and components	$$$$	EMCS/BAS Window repl.

M&V Measurement Options

- Each ECM is assigned an M&V option
- Measurements differ by:
  - Level, frequency, duration
  - Whether key values are agreed to without performance period measurement
    - Example: operating hours

- Key contributors that impact savings
  - Schedule overrides or changes
  - Manual override of VFDs
  - Temperature setpoint changes
  - Deferred O&M/R&R



Types of M&V Reports

Commissioning (Cx) Report

- Closely related to M&V, prior to post-install M&V activities
- Purpose: Verify equipment operating as intended and delivering specified conditions
- Functional performance testing to meet “design intent”

Post-Installation (Year 0) M&V Report

- Prior to acceptance (Gives Customer some leverage with ESCO prior to acceptance)
- Not always a requirement, but highly recommended
- Purpose: Verify potential for savings
- Ensure that ECMs meet performance requirements

Annual M&V Reports

- Annually according to contract
- Purpose: Verify achievement of savings
- Ensure ESCO followed M&V plan, ECM operations & maintenance (O&M) and repair & replacement (R&R) documented
- Note that customer witnessed savings validation

Customer obligations:

- Timely review of M&V reports
  - Documents report review and acceptance recommendation (or not!)
  - Fill any gaps
- Document customer impacts on savings
- Maintain current contract file (Use eProject eXpress!)

Record, Report, and Archive

What to Save?

All of it!

- RFP and Response
- Contracts; Base, IGA, ESPC
- Spreadsheets, witness reports, meeting minutes, checklists, commissioning reports, communication – all decisions
- Recommend ePX over ESCO proprietary software to maintain control over your data

Where do you put it?

eProjecteXpress

ePX is a free resource developed and maintained by Lawrence Berkeley National Laboratory on behalf of the U.S. Department of Energy.

ePX user guides and informational/training videos available on the Help page here.

M&V Best Practices

M&V is critical for long-term ESPC project success!

- M&V requirements in ESPC contract must be strong enough to hold ESCO accountable
- Customer must review and understand M&V strategy
  - Recognize that the goal is reduced savings uncertainty… but more rigorous M&V adds cost
  - Importance of witnessing cannot be overstated
  - Use a graded approach, focusing on critical systems and highest energy savings
- ESPCs are long-term contracts, and changes during the term are inevitable
  - Ensure sustained performance through close engagement with ESCO

What you don't measure, you can't manage.

Commissioning (Cx) Key Elements

- **Project Intent:** Clearly define the desired outcomes and performance criteria for the project. Commissioning Approach: ESCO develops a Cx approach based on the selected ECMs.
- **Commissioning Plan:** Develop a detailed plan that includes all commissioning activities, schedules, and responsibilities, once equipment has been selected.
- **ECM Installation and Functional Performance Tests:** Ensure all ECMs are installed correctly and perform as expected through rigorous testing.
- **Commissioning Report:** Document all commissioning activities, test results, and any corrective actions taken.
- **Commissioning and Project Acceptance:** Achieve formal acceptance of the project by demonstrating that all performance criteria are met and documented.

More information available from FEMP: https://www.energy.gov/femp/articles/2008-doe-idiq-espc-commissioning-guidance

Commissioning Roles and Responsibilities

Customer

- Review and Approval:
  - Review and approve the commissioning plan developed by the ESCO.
  - Participate in key project milestones, such as design reviews and functional performance tests.
- Acceptance and Verification:
  - Conduct final acceptance of the project, ensuring all performance criteria are met.
  - Participate in ongoing M&V activities to verify energy savings and performance.

ESCO

- Plan:
  - Create a commissioning plan outlining the scope, schedule, and procedures for commissioning activities.
  - Ensure the plan includes functional performance tests for all installed ECMs.
- Implementation and Testing:
  - Install and integrate energy-saving equipment and systems.
  - Perform pre- and functional performance tests to verify that systems operate as intended.
- Documentation and Reporting:
  - Prepare detailed commissioning reports, documenting test results and any issues encountered.
  - Provide training for facility staff on the operation and maintenance of new systems.

Check In: Discussion of information so far...

Pop Quiz!

- Why is an IGAA so important?
- How can "bundling" of low and high payback ECMs help me?
- How often should I be meeting with my ESCO during the IGA?
- How does M&V and Cx differentiate ESPC from DBB?

Comments?

Funny jokes?

3. Financial Analysis

An analysis of the financial aspects of the proposed ECMs, including costs, savings, payback periods, and return on investment. This helps in determining the financial feasibility of the project.

This may include:

- Project Cost and Cash Flow Analysis
- Payment Schedule – align with project implementation schedule
- ESCO Annual Services Compensation
- Funding and Financing Mix

Illustrating Project Economics

- Project Cost and Cash Flow Analysis
  - Development Expenses (IGA costs)
  - Implementation Pricing (open-book, in Excel, with live formulae)
    - Subcontractor Costs
    - ESCO fees including design, construction and project management, Commissioning, M&V, training, etc.
    - Overhead and Profit
  - Realization of savings in line with future debt payments
- Payment Schedule – align with project implementation schedule
- ESCO Annual Services Compensation
  - O&M
  - M&V
- Funding and Financing Mix
  - Tax Exempt Lease Purchase
  - Bonds
  - Rebates, incentives and grants (don't forget IRA funding!!)

Open Book ESCO pricing

ESCO should provide an open-book, transparent cost buildup that shows all subcontractor costs, as well as their fees, markups, etc. in an Excel file, with working cell formulae.

	CATEGORY	Cost	ESCO Costs
a	SUB CONTRACTOR COSTS	To be completed as part of the IGA with site-specific scope, costs, etc.	Hard Costs - To be provided with open book pricing
b	OTHER DIRECT PURCHASES OF EQUIP.MAT/SUPPLIES		
c	**TOTAL OF HARD COSTS**		c = a + b
d	PROJECT DEVELOPMENT		2.00%
e	DESIGN/ENGINEERING		4.00%
f	PROJECT MANAGEMENT		5.00%
g	PERMITS		0.50%
h	PERFORMANCE BOND		0.75%
i	PAYMENT BOND		1.00%
j	COMMISSIONING		1.00%
k	MEASUREMENT & VERIFICATION		2.00%
l	TRAINING		0.75%
m	CONTINGENCY		2.00%
n	WARRANTY SERVICE		1.00%
o	MAINTENANCE		1.00%
p	**TOTAL OF ESCO FEES**		**21.00%**
q	OVERHEAD		**10.00%**
r	PROFIT		**5.00%**
s	**TOTAL OF SOFT COSTS**	s=p+q+r	36.00%

Example Pro Forma Cash Flow (20 year term)

Table Components

- **Energy Cost Savings:** ECM savings w/ 2% escalation.
- **Operational Savings:** O&M savings w/ 2% escalation.
- **Total Savings:** Sum of energy cost and O&M savings.
- **Loan Payment:** Annual payment to the financier for the project implementation, financing, and guaranteed savings. Simplified here, but typically increases to match escalation rate to maximize scope.
- **Net Cash Flow:** The difference between total savings and ESCO payment, representing the client's annual benefit.

Key Observations

- **Positive Cash Flow:** The project maintains a positive cash flow in every year of the contract term. ***Usually a statutory requirement.***
- **Increasing Benefits:** As savings grow over time, the net cash flow increases annually.
- **Guaranteed Savings:** The loan payment is structured to be less than the total savings each year, ensuring positive cash flow.
- **Long-Term Value:** By the end of the 20-year term, the client's annual net benefit has grown significantly, demonstrating the long-term value of the ESPC approach.

Year	Energy Cost Savings	O&M Savings	Total Savings	Loan Payment	Net Cash Flow
1	$100,000	$20,000	$120,000	$110,000	$10,000
2	$102,000	$20,400	$122,400	$110,000	$12,400
3	$104,040	$20,808	$124,848	$110,000	$14,848
4	$106,121	$21,224	$127,345	$110,000	$17,345
5	$108,243	$21,649	$129,892	$110,000	$19,892
6	$110,408	$22,082	$132,490	$110,000	$22,490
7	$112,616	$22,523	$135,139	$110,000	$25,139
8	$114,869	$22,974	$137,842	$110,000	$27,842
9	$117,166	$23,433	$140,599	$110,000	$30,599
10	$119,509	$23,902	$143,411	$110,000	$33,411
11	$121,899	$24,380	$146,279	$110,000	$36,279
12	$124,337	$24,867	$149,205	$110,000	$39,205
13	$126,824	$25,365	$152,189	$110,000	$42,189
14	$129,361	$25,872	$155,233	$110,000	$45,233
15	$131,948	$26,390	$158,337	$110,000	$48,337
16	$134,587	$26,917	$161,504	$110,000	$51,504
17	$137,279	$27,456	$164,734	$110,000	$54,734
18	$140,024	$28,005	$168,029	$110,000	$58,029
19	$142,825	$28,565	$171,390	$110,000	$61,390
20	$145,681	$29,136	$174,817	$110,000	$64,817
Totals:	$2,429,737	$485,948	$2,915,683	$2,200,000	$715,683

Financing an ESPC Project

- Financing is typically **a stand-alone agreement**, separate from the ESPC, between client and financial organization; signed when ESPC signed
  - Linked with ESPC agreement through the payment schedules and savings guarantee plus other related expenses such as M&V
  - Owners typically issue their own Financing RFP, with assistance from in-house and/or outside Financial Advisory firms
- **Tax-exempt, municipal lease-purchase (TELP)**
  - This typical approach delivers the lowest financing rates and greatest flexibility in structuring the re-payment debt schedule to match the accrual of savings overtime
  - No standardized agreement is available- It is expected that the responding firm will have an agreement that has already been used in the state, providing a working template
- Benefits of this Approach
  - Gain the ESCO's input on recommended best financing proposal
  - Ensure the procurement process does not delay signing of the performance contract
  - Provides the ESCO with immediate input on available interest rates that will impact the cash flow of the project

Best Practices for Financing an ESPC Project

- Implementation Pricing should be **Open-book**, in Excel, with live formulae, no PDFs!
- Work closely with ESCO to identify and secure all possible funding sources.
  - Optimize timing of all grants, incentives, subsidies to avoid shortages.
  - Appropriated funds that can be used as a "down payment" to reduce financed amount.
  - Utility incentives and rebates can reduce total cost but paid when project is completed. Work with ESCO.
  - Bipartisan Infrastructure Law's EECBG grants can be used to offset technical, legal, and finance consulting costs.
  - Inflation Reduction Act direct subsides can be sued to pay for >30% of PV, heat pump, BESS, and EV charging.
- Owners should receive clear buy-in and approval from all AHJs prior to issuing RFP.
- Once IGA is ~60% complete start on Financial RFP process.
- Use indicative rates for ESCOs' pro forma cash flow in 90% IGA.
- Ensure "rate lock" is in effect until Performance Contract is approved!

4. Risk Analysis

Risks and Responsibilities must be clearly allocated between the ESCO and Customer (and roles within the customer's organization!) in the contract, including technical, operational, and financial risks. Allocation of responsibility should effectively balance the resources and preferences of the Customer, and the factors within an ESCO's control.

Improper risk allocation can lead to:

- Schedule delays
- Wasted resources
- Higher likelihood of disputes
- Distrust between client & ESCO
- Unsatisfactory experience for the client. Black eye for the ESPC industry.

Include mitigation strategies to address these risks. This may include:

- Sensitivity analysis
- Identification of potential barriers
- Contingency planning
- Shortfall resolution plan

Risk Mitigation - Comparison to Design-Bid-Build

Design-Bid-Build

- RFP for energy auditing firm ($$), no guarantees of savings or costs
- RFP for design/engineering consultant prepared and released; selected consultant prepares plans and specs, no M&V, O&M, Cx plans!! Owner pays from budget (lots of $$)
- RFP for contractor prepared and released; select contractor, usually low bid
- Contractor typically charges Owner for change orders, then completes project, with only one year warrantee
- Commissioning performed, if included; no on-going verification

ESPC

- OR hired first is a best practice to help with balance of procurements
- ESCO selection based on qualifications (usually)
- ESCO conducts audit for savings opportunities and scope needs on contingent cost basis
- ESCO provides guaranteed maximum construction cost, and minimum guaranteed savings for contract term
- ESCO assumes the construction and performance risk for the project
- ESCO performs commissioning; on-going verification to confirm performance
- ESCO is single point of contact for entire project

Risk, Responsibility & Performance Matrix (RRPM)

The purpose of the RRPM is to help public entities:

- Understand how key contract elements affect costs and savings,
- Understand how to tailor the contract to match their own needs and priorities,
- Give some structure to the decision making and negotiations, and
- Document the decisions in these areas.

The RRPM is a summary only. The details of these agreements are in the M&V Plan, RFP, and the ESCO's management approach. The RRPM in the final contract summarizes the agreements.

The following is a list of the 14 areas of risk and responsibility in the RRPM. The website discusses some of the implications of choosing some options over others.

Resource: Recognizing and Assigning ESPC Risks and Responsibilities Using the Risk, Responsibility, and Performance Matrix (RRPM)

Financial

- Interest rates
- Construction costs
- M&V confidence
- Energy-related (one-time) savings
- Delays
- Major changes in facility

Operational

- Operating hours
- Loads
- Weather
- User Participation

Performance

- Equipment Performance
- Operations
- Preventive Maintenance
- Equipment repair and replacement

Risk, Responsibility & Performance Matrix Example

ATTACHMENT J-7

ENERGY SAVINGS PERFORMANCE CONTRACT RISK, RESPONSIBILITY AND PERFORMANCE MATRIX

RESPONSIBILITY/DESCRIPTION	CONTRACTOR PROPOSED APPROACH
1. Financial	
a. Interest rates: Neither the contractor nor the agency has significant control over prevailing interest rates. Higher interest rates will increase project cost, financing/project term, or both. The timing of the TO signing may impact the available interest rate and project cost.	
b. Construction costs: The contractor is responsible for determining construction costs and defining a budget. In a fixed-price design/build contract, the agency assumes little responsibility for cost overruns. However, if construction estimates are significantly greater than originally assumed, the contractor may find that the project or measure is no longer viable and drop it before TO award. In any design/build contract, the agency loses some design control. **Clarify design standards and the design approval process (including changes) and how costs will be reviewed.**	
c. M&V confidence: The agency assumes the responsibility to determine the confidence that it desires to have in the M&V program and energy savings determinations. The desired confidence will be reflected in the resources required for the M&V program, and the ESCO must consider the requirement prior to submittal of the final proposal. **Clarify how project savings are being verified (e.g., equipment performance, operational factors, energy use) and the impact on M&V costs.**	
d. Energy Related Cost Savings: The agency and the contractor may agree that the project will include savings from *recurring* and/or *one-time* costs. This may include one-time savings from avoided expenditures for projects that were appropriated but will no longer be necessary. Including one-time cost savings before the money has been appropriated may involve some risk to the agency. Recurring savings generally result from reduced O&M expenses or reduced water consumption. These O&M and water savings must be based on actual spending reductions. **Clarify sources of nonenergy cost savings and how they will be verified.**	

5. Project Scope and Implementation Plan

A detailed plan outlining the scope of work, including timelines, responsibilities, and milestones. This ensures that the project is implemented efficiently and effectively.

This may include:

- Project schedule or Roadmap
  - From design through commissioning and acceptance
- Resource allocation
- Division of Roles and Responsibilities
- Coordination with facility operations
  - Maintenance checklist
- Communication plan
- Training program
- Final Design and Submittals plan
- Construction and Commissioning plan

Implementation Plan: Goals

- Typically, this isn't presented as a detailed exhibit like Measurement & Verification, but details should be discussed and committed to in writing by the ESCO
- Provides reasonable assurance that project can be delivered
  - On time
  - Within budget
  - With required equipment functionality and cost savings
  - In close collaboration with Owner's technical staff
  - With resiliency to sustain performance over life of contract
- Provides agreed-to level of quality and reduces risk (ESCO and client)
  - Reasonable and realistic
  - Proactive approach
  - Monitoring and control
  - Communication
  - Accommodation to change

Implementation Plan: Elements

- Communication Plan
  - Capable of promoting efficient flow of information?
- Organization (id roles and structure)
  - Identifies key personnel and authority for effective project management?
- Proposed Operation and Maintenance O&M
- Reporting Risks & Responsibilities
  - To meet site requirements
- ECM Training Program (key differentiator of ESPC)
  - Adequate to operate, maintain and repair ECMs?
  - Thorough training of the O&M staff by the ESCO prior to project acceptance, and plan refreshers, is a key to avoiding performance and savings shortfall issues
- Project schedule
  - Well-suited for successful implementation?
  - Adequate time built in for Owner reviews, inspections, etc.?

6. Review and Contract Approval

The final step in the IGA process where the audit findings, proposed ECMs, financial analysis, and implementation plan are reviewed by stakeholders. Approval is needed to move forward with the ESPC project.

This may include:

- Identification of stakeholders
  - Can include state energy office or other authoritative bodies as applicable
- Stakeholder meetings
- Presentation of IGA results
- Formal approval process (Council/Board Vote)

Three Elements of an Energy Savings Performance Contract

1. Audit, Construction, and Installation Contract

- Implement the projects identified & negotiated in the IGA
- Description of project sites
- Equipment to be installed by ESCO
- Construction and installation schedule
- Systems start-up and commissioning; operating parameters of installed equipment
- Standards of comfort
- ESCO's training responsibilities

2. Long-term/ Post Construction Contract

- Measurement and verification plan to monitor performance.
- Documented baseline and guaranteed savings to meet the annual lease-purchase payments plus any additional annual fees related to the project.
- Provide Operation & Maintenance (optional)
  - ESCO's maintenance responsibilities
  - Owner's maintenance responsibilities
- Facility maintenance checklist
- Annual reporting requirements
- Annual dispute resolution procedures

3. Financing Agreement

- Final project cost and project cash flow analysis
- Payments and Schedule
- Compensation to ESCO for annual services

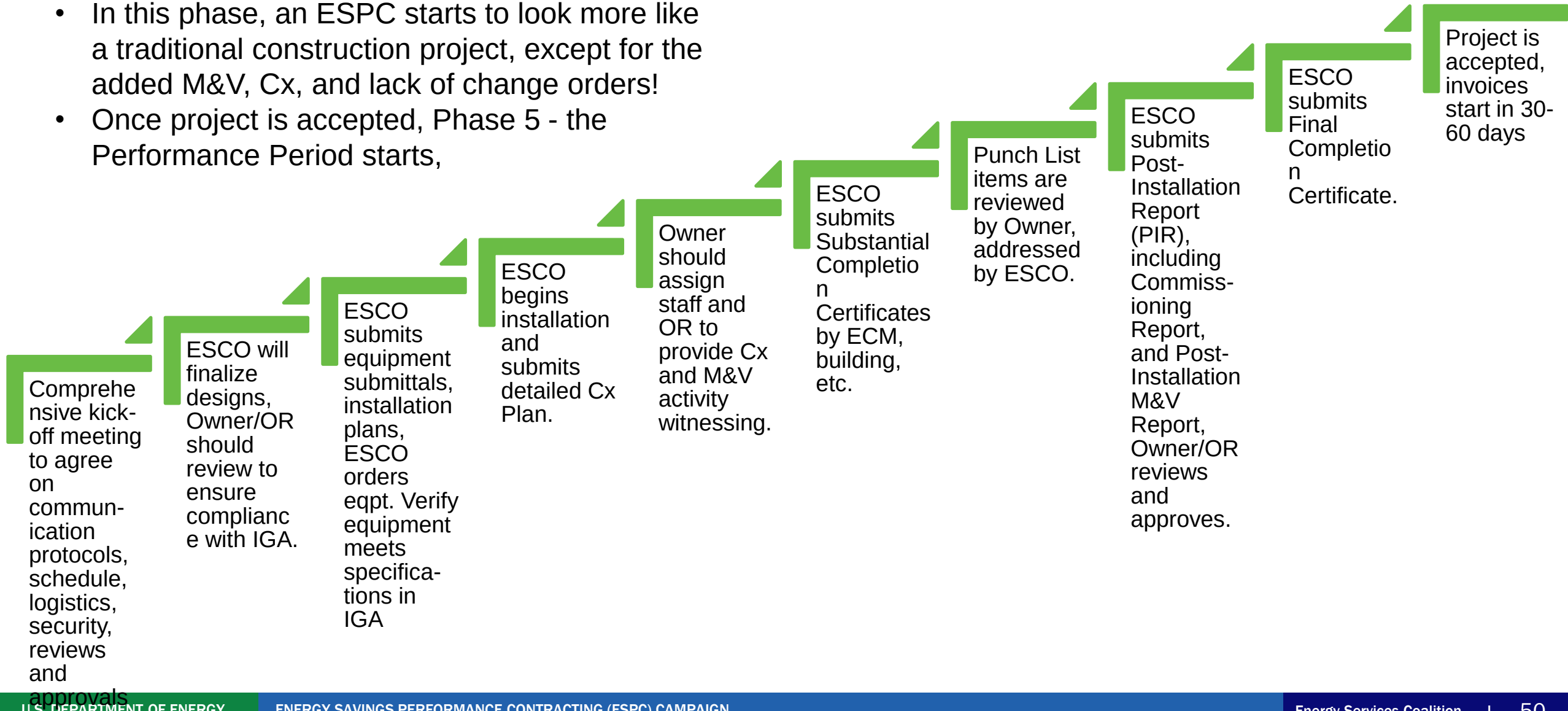
A financing agreement with a financier is signed at the same time.

Executing a Performance Contract: Best Practices

- Stakeholder engagement - early and often - to avoid surprises and delays.
  - "Authorities Having Jurisdiction" (AHJs)
  - Enlist the assistance of your legal counsel, finance staff, and facilities personnel - have them review Terms and Conditions.
  - Use a Comment/Response/Resolution document to ensure all issues are addressed (Owner's Rep can help)
- Ensure robust savings guarantee
  - Covers the annual debt service
  - Requires the ESCO to pay any remaining balance if expected annual savings are not reached
  - Remedies for deficiencies if ECM performance compromised
- Operation & Maintenance
  - Indicate who performs (ESCO or Owner)
  - Clearly lay out Risks & Responsibilities
  - Performance requirements (what and when) (monitoring, documentation and reporting performance)
  - Requirements for record keeping
- Ensure the entire IGA is incorporated into the ESA by reference

Final Design, Submittals, Construction, Commissioning

- In this phase, an ESPC starts to look more like a traditional construction project, except for the added M&V, Cx, and lack of change orders!
- Once project is accepted, Phase 5 - the Performance Period starts,



Resources

Resources

- ESPC Podcasts | Energy Services Coalition
- Energy Savings Performance Contracting (ESPC) Toolkit | U.S. DOE
- Model Documents for an Energy Savings Performance Contract | U.S. DOE
- Performance Contracting National Resource Center | U.S. DOE
- eProject eXpress | U.S. DOE
- ENERGY STAR Portfolio Manager | U.S. EPA
- Funding and Incentives Resource Hub | U.S. DOE
- Financing Navigator | U.S. DOE

ESPC Campaign Overview

The **Energy Savings Performance Contracting (ESPC) Campaign** engages states, local governments, school districts, universities and colleges, hospitals, and other market stakeholders to:

- **Support** the use of performance contracting to increase efficiency, modernize public buildings, reduce utility expenses, increase resilience, and meet lead-by-example goals
- **Share and Leverage Practical Resources** to strengthen ESPC and measurement & verification (M&V)
- **Amplify and Implement Best Practice Approaches** for ESPC projects and programs
- **Demonstrate Impact** with measured and verified energy and cost savings
- **Showcase Achievements** and share examples of successful ESPC implementation

- ✓ ***Expert-led Trainings***
- ✓ ***Webinars***
- ✓ ***Peer Exchanges***
- ✓ ***"Ask-an-Expert" Office Hours***
- ✓ ***Resource Library***

Complete the Expression of Interest form to obtain a Partner Agreement

Next Steps

Upcoming Events

Workshop

- **Thursday, October 24th 2-3PM ET** - Reviewing Investment Grade Audits and Project Proposals – **Register here!**

Training

- **Monday, October 28th 2-3:30PM ET**, EECBG Blueprint Cohort training: "Development Part 2"
  - Learn about understanding risk, reviewing bids, operations & maintenance, and warranty, repair and replacement
- Complete **this form** at least 2 weeks in advance and express interest in Cohort 2B to receive this and future EECBG training invites (one-time sign-up)
- Open to all communities – not just Energy Efficiency and Conservation Block Grant (EECBG) recipients

Peer Exchange

- First peer exchange will focus on RFP development and ESCO selection. Share experiences with ESCO procurement
- **Meeting invitation will be sent to ESPC Campaign partners** (availability poll)

Office Hours

- State and local ESPC Campaign partners are invited to set up a time to speak with a Department of Energy Project Facilitator (Owner's Representative) during virtual office hours in October.
- These Q&A sessions allow you to speak one-on-one with a live Subject Matter Expert (SME). Discussion topics can be anything regarding ESPC, including specific questions regarding your project.

Case Study Collection

DOE is collecting case studies to share examples of impactful ESPC projects and programs and highlight your efforts to accomplish your goals.

To share a case study, please provide preliminary information via this Submission Form.

ESC will draft the document and work with you to review and finalize before DOE publication.

Questions, Discussion

Thank you!

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A copy of the slides from today's presentation will be provided to you for reference